

Mr. Steve Keylor  
Victory Environmental Services, Inc.  
12247 South Mill Street  
Terre Haute, IN 47802

October 29, 2003

Re: 167-14898-00116  
Significant Source Modification to:  
Part 70 permit No.: T167-9639-00116

Dear Mr. Keylor:

Victory Environmental Services, Inc. was issued Part 70 operating permit T167-9639-00116 on July 12, 1999 for a municipal solid waste landfill. An application to modify the source was received on October 2, 2001. Pursuant to 326 IAC 2-7-10.5 the following system is approved for construction at the source:

A system consisting of vertical gas extraction wells connected by a network of header piping that will be used to transport the collected landfill gas to a central point of service. Landfill gas will be collected from the landfill by inducing a vacuum on the wellfield using an in-line blower system. The collected landfill gas will then be routed to a utility flare with the following parameters: a maximum inlet flow of 3,000 scfm, design flame temperature of 1,400EF, flare tip height of 34 feet, flare tip diameter of 1 foot, spark plug igniter system, and a destruction efficiency of 98%.

The following construction conditions are applicable to the proposed project:

General Construction Conditions

1. The data and information supplied with the application shall be considered part of this source modification approval. Prior to any proposed change in construction which may affect the potential to emit (PTE) of the proposed project, the change must be approved by the Office of Air Quality (OAQ).
2. This approval to construct does not relieve the permittee of the responsibility to comply with the provisions of the Indiana Environmental Management Law (IC 13-11 through 13-20; 13-22 through 13-25; and 13-30), the Air Pollution Control Law (IC 13-17) and the rules promulgated thereunder, as well as other applicable local, state, and federal requirements.
3. Effective Date of the Permit  
Pursuant to IC 13-15-5-3, this approval becomes effective upon its issuance.
4. Pursuant to 326 IAC 2-1.1-9 and 326 IAC 2-7-10.5(i), the Commissioner may revoke this approval if construction is not commenced within eighteen (18) months after receipt of this approval or if construction is suspended for a continuous period of one (1) year or more.
5. All requirements and conditions of this construction approval shall remain in effect

Reviewer: Darren Woodward

unless modified in a manner consistent with procedures established pursuant to 326 IAC 2.

6. Pursuant to 326 IAC 2-7-10.5(I) the emission units constructed under this approval shall not be placed into operation prior to revision of the source's Part 70 Operating Permit to incorporate the required operation conditions.

This significant source modification authorizes construction of the new emission units. Operating conditions shall be incorporated into the Part 70 operating permit as a significant permit modification in accordance with 326 IAC 2-7-10.5(I)(2) and 326 IAC 2-7-12. Operation is not approved until the significant permit modification has been issued.

This decision is subject to the Indiana Administrative Orders and Procedures Act - IC 4-21.5-3-5. If you have any questions on this matter call Mr. Darren Woodward at Vigo County Air Pollution Control (VCAPC), (812)462-3433, extension 15.

Sincerely,

Original Signed by George M. Needham  
George M. Needham  
Director  
Vigo County Air Pollution Control

Attachments

DKW

cc: Mindy Hahn - IDEM  
Winter Bottum - IDEM  
Dan Magoun - Repulic Services, Inc.

**Indiana Department of Environmental Management  
Office of Air Quality  
and  
Vigo County Air Pollution Control**

Technical Support Document (TSD) for a Part 70 Significant Source Modification and Significant Permit Modification to a Part 70 Operating Permit.

**Source Background and Description**

<b>Source Name:</b>	<b>Victory Environmental Services, Inc.</b>
<b>Source Location:</b>	<b>12247 South Mill Street, Terre Haute, Indiana 47802</b>
<b>County:</b>	<b>Vigo</b>
<b>SIC Code:</b>	<b>4953</b>
<b>Operation Permit No.:</b>	<b>T167-9639-00116</b>
<b>Operation Permit Issuance Date:</b>	<b>July, 12, 1999</b>
<b>Significant Source Modification No.:</b>	<b>167-14898-00116</b>
<b>Significant Permit Modification No.:</b>	<b>167-17803-00116</b>
<b>Permit Reviewer:</b>	<b>Darren Woodward</b>

Vigo County Air Pollution Control (VCAPC) has reviewed a modification application from Victory Environmental Services, Inc. relating to the construction and operation of the following emission units and pollution control devices:

A system consisting of vertical gas extraction wells connected by a network of header piping that will be used to transport the collected landfill gas to a central point of service. Landfill gas will be collected from the landfill by inducing a vacuum on the wellfield using an in-line blower system. The collected landfill gas will then be routed to a utility flare with the following parameters: a maximum inlet flow of 3,000 scfm, design flame temperature of 1,400EF, flare tip height of 34 feet, flare tip diameter of 1 foot, spark plug igniter system, and a destruction efficiency of 98%.

**Existing Approvals**

The source was issued a Part 70 Operating Permit (T167-9639-00116) on July 12, 1999.

**Enforcement Issue**

There are no enforcement actions pending.

**Recommendation**

The staff recommends to the Commissioner that the Part 70 Significant Source Modification and the Part 70 Significant Permit Modification be approved. This recommendation is based on the following facts and conditions:

Unless otherwise stated, information used in this review was derived from the application and additional information submitted by the applicant.

An application for the purposes of this review was received on October 2, 2001.

## Emission Calculations

The calculations submitted by the applicant have been verified and found to be accurate and correct. These calculations are provided in Appendix A of this document on pages 6 and 7.

## Potential To Emit of Modification

Pursuant to 326 IAC 2-1.1-1(16), Potential to Emit is defined as “the maximum capacity of a stationary source to emit any air pollutant under its physical and operational design. Any physical or operational limitation on the capacity of a source to emit an air pollutant, including air pollution control equipment and restrictions on hours of operation or type or amount of material combusted, stored, or processed shall be treated as part of its design if the limitation is enforceable by the U. S. EPA.”

This table reflects the PTE before controls. Control equipment is not considered federally enforceable until it has been required in a federally enforceable permit.

Pollutant	Potential To Emit (tons/year)
PM	3.64
SO <sub>2</sub>	6.60
VOC	0.830
CO	160
NO <sub>x</sub>	29.0

HAP's	Potential To Emit (tons/year)
1,1,1-Trichloroethane (methyl chloroform)	2.7 E-3
1,1,2,2-Tetrachloroethane	7.7E-3
1,1-Dichloroethane (ethylidene dichloride)	9.7E-3
1,1-Dichloroethene (vinylidene chloride)	8.1E-4
1,2-Dichloroethane (ethylene dichloride)	1.7E-3
1,2-Dichloropropane (propylene dichloride)	8.4E-4
Acrylonitrile	2.1E-3
Benzene	9.3E-4
Carbon Disulfide	2.8E-4
Carbon Tetrachloride	2.6E-5
Carbonyl Sulfide	1.8E-4
Chlorobenzene	1.2E-3
Chloroethane (ethyl chloride)	3.3E-3
Chloroform	1.5E-4
Dichlorobenzene	1.3E-3
Dichloromethane (methylene chloride)	5.0E-2
Ethylbenzene	3.0E-3
Hexane	3.5E-3
Hydrogen Sulfide	7.5E-3
Mercury	1.2E-4
Methyl Ethyl Ketone	3.2E-3
Methyl Isobutyl Ketone	1.2E-3
Perchloroethylene (tetrachloroethylene)	2.6E-2
Toluene	2.3E-2
Trichloroethylene (trichloroethene)	1.5E-2
Vinyl Chloride	1.9E-2
Xylenes	8.0E-3
Hydrogen Chloride	3.18
TOTAL	3.37

## Justification for Modification

The Part 70 Operating permit is being modified through this Part 70 Significant Source Modification. This modification is being performed pursuant to 326 IAC 2-7-10.5(f)(4) and (7), any

modification with a potential to emit greater than or equal to twenty-five (25) tons per year of any of the following pollutants: PM, PM<sub>10</sub>, SO<sub>2</sub>, NO<sub>x</sub>, VOC, H<sub>2</sub>S, TRS, reduced sulfur compounds, and Fluorides. Any modification with a potential to emit greater than or equal to one hundred (100) tons per year of carbon monoxide (CO).

### Actual Emissions

The following table shows the actual emissions from the source. This information reflects the 2001 OAQ emission data.

Pollutant	Actual Emissions (tons/year)
PM	16.1
SO <sub>2</sub>	NA
VOC	6.89
CO	NA
NO <sub>x</sub>	NA
HAP (specify)	NA

### County Attainment Status

The source is located in Vigo County.

Pollutant	Status
PM	attainment
SO <sub>2</sub>	attainment
NO <sub>2</sub>	attainment
Ozone	attainment
CO	attainment
Lead	attainment

- (a) Volatile organic compounds (VOC) are precursors for the formation of ozone. Therefore, VOC emissions are considered when evaluating the rule applicability relating to the ozone standards. Vigo County has been designated as attainment or unclassifiable for ozone. Therefore, VOC emissions were reviewed pursuant to the requirements for Prevention of Significant Deterioration (PSD), 326 IAC 2-2.

### Source Status

Existing Source PSD Definition (emissions after controls, based upon 8760 hours of operation per year at rated capacity and/or as otherwise limited):

Pollutant	Emissions (tons/year)
PM	less than 100
PM-10	less than 100
SO <sub>2</sub>	less than 100
VOC	less than 100
CO	less than 100
NO <sub>x</sub>	less than 100

- (a) This existing source is not a major stationary source because no attainment regulated pollutant is emitted at a rate of 250 tons per year or more, and it is not one of the 28 listed source categories.
- (b) These emissions are based upon Victory Environmental Services, Inc.'s Part 70 Permit (T167-9639-00116), issued July 12, 1999.

### Potential to Emit of Modification After Issuance

The table below summarizes the potential to emit, reflecting all limits, of the significant emission units after controls. The control equipment is considered federally enforceable only after issuance of this Part 70 source modification.

	Potential to Emit (tons/year)					
Process/facility	PM	SO <sub>2</sub>	VOC	CO	NO <sub>x</sub>	HAPs
Flare	3.64	6.61	0.832	160	29.5	3.18/3.37
Emission Thresholds	250	250	250	250	250	10/25

This modification to an existing minor stationary source is not major because the emission increase is less than the PSD significant levels. Therefore, pursuant to 326 IAC 2-2, the PSD requirements do not apply.

### Federal Rule Applicability

- (a) There are no New Source Performance Standards (NSPS)(326 IAC 12 and 40 CFR Part 60) applicable to this proposed modification.
- (b) There are no National Emission Standards for Hazardous Air Pollutants (NESHAPs)(326 IAC 14 and 40 CFR Part 63) applicable to this proposed modification.

### State Rule Applicability - Entire Source

#### 326 IAC 2-4.1-1 (New source toxics control)

The potential to emit Hazardous Air Pollutants (HAP) is less than ten (10) tons per year of any single HAP and less than twenty-five (25) tons per year of any combination of HAPs. Therefore, 326 IAC 2-4.1-1 is not applicable.

#### 326 IAC 5-1 (Opacity Limitations)

Pursuant to 326 IAC 5-1-2 (Opacity Limitations), except as provided in 326 IAC 5-1-3 (Temporary Alternative Opacity Limitations), opacity shall meet the following, unless otherwise stated in this permit:

- (a) Opacity shall not exceed an average of forty percent (40%) any one (1) six (6) minute averaging period as determined in 326 IAC 5-1-4.
- (b) Opacity shall not exceed sixty percent (60%) for more than a cumulative total of fifteen (15) minutes (sixty (60) readings) as measured according to 40 CFR 60, Appendix A, method 9 or fifteen (15) one (1) minute nonoverlapping integrated averages for a continuous opacity monitor) in a six (6) hour period.

### State Rule Applicability - Individual Facilities

There are no Indiana Administrative Codes (IAC) applicable to the individual facilities proposed in this modification.

## **Compliance Requirements**

Permits issued under 326 IAC 2-7 are required to ensure that sources can demonstrate compliance with applicable state and federal rules on a more or less continuous basis. All state and federal rules contain compliance provisions, however, these provisions do not always fulfill the requirement for a more or less continuous demonstration. When this occurs IDEM, OAQ, in conjunction with the source, must develop specific conditions to satisfy 326 IAC 2-7-5. As a result, compliance requirements are divided into two sections: Compliance Determination Requirements and Compliance Monitoring Requirements.

Compliance Determination Requirements in Section D of the permit are those conditions that are found more or less directly within state and federal rules and the violation of which serves as grounds for enforcement action. If these conditions are not sufficient to demonstrate continuous compliance, they will be supplemented with Compliance Monitoring Requirements, also Section D of the permit. Unlike Compliance Determination Requirements, failure to meet Compliance Monitoring conditions would serve as a trigger for corrective actions and not grounds for enforcement action. However, a violation in relation to a compliance monitoring condition will arise through a source's failure to take the appropriate corrective actions within a specific time period.

## **Conclusion**

The construction and operation of this proposed modification shall be subject to the conditions of the attached proposed Part 70 Significant Source Modification No. 167-14898-00116, and Part 70 Significant Permit Modification No. 167-17803-00116.

Open Flare Emissions  
Fuel and Equipment  
Victory Environmental Landfill  
Vigo County, Indiana

Standard Conditions

standard temperature	60 °F	520 °R
gas constant (R)	0.7302 atm-ft <sup>3</sup> /lb-mol <sup>b</sup> R	
pressure	1 atm	

LFG Assumptions

operation period	365 days	
operation period	8,760 hours	
% Methane	55%	
LFG inlet flow	3,000 scfm	
expected LFG temp	80 °F	540 °R

Inlet LFG Calculations

LFG inlet flow	1,577 MMscf/year	
LFG heating value <sup>a</sup>	550 btu/scf	
heat input for period	867,240 MMbtu/year	
heat input	99.0 Mmbtu/hr	

Flare Design Parameters

design flame temperature <sup>b</sup>	1,400 °F	1,860 °R
inlet flow	3,000 scfm	
flare tip flow (at 100°F inlet flow)	3,115 acfm	
moisture <sup>c</sup>	8%	
inlet flow (dry)	2,760 dscfm	78,155 dslm
flare tip diameter <sup>b</sup>	1.00 ft	0.305 m
flare tip velocity	3,967 ft/min	20.2 m/s
flare tip height agl <sup>b</sup>	34 ft	10.36 m

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<sup>a</sup>Based on the heating value of the methane content (source: AP-42, 9/97)

<sup>b</sup>Source: flare manufacturer

<sup>c</sup>Source: "Landfill Gas Emissions," Louis Kalani and Ray Nardelli, LFG Specialties, presented at 20<sup>th</sup> Annual Landfill Gas Symposium (SWANA), 3/25/96



Open Flare Emissions  
Criteria Pollutant Emissions  
Victory Environmental Landfill  
Vigo County, Indiana

LFG flow	3,000 scfm
Heat Input to Flare(s)	99 Mmbtu/hr
<u>PM<sub>10</sub> Emission Rate</u>	
PM emission factor <sup>c</sup>	80 mg/dsl inlet
<b>PM emission rate</b>	<b>0.83 lb/hr; 3.64 tons/yr</b>
<u>VOC Emission Rate</u>	
NMOC conc inlet gas <sup>b</sup>	595 ppmv
VOC fraction of NMOC <sup>b</sup>	39%
VOC concentration in inlet gas	232 ppmv
MW hexane	86 lb/lb-mol
mass VOC inlet gas	9.46 lb/hr
destruction efficiency	98 %
<b>VOC emission rate</b>	<b>0.19 lb/hr; 0.832 ton/yr</b>
<u>SO<sub>2</sub> Emission Rate</u>	
Total Sulfur in inlet gas <sup>a</sup>	49.6 ppmv
<b>SO<sub>2</sub> emission rate</b>	<b>1.51 lb/hr; 6.61 tons/yr</b>
<u>NO<sub>2</sub> Emission Rate</u>	
NO <sub>2</sub> emission factor <sup>d</sup>	0.068 lb/MMbtu
<b>NO<sub>2</sub> emission rate</b>	<b>6.73 lb/hr; 29.5 tons/yr</b>
<u>CO Emission Rate</u>	
CO emission factor <sup>d</sup>	0.37 lb/MMbtu
<b>CO emission rate</b>	<b>36.63 lb/hr; 160 tons/yr</b>

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<sup>a</sup>Inlet H<sub>2</sub>S, carbon disulfide, carbonyl sulfide, dimethyl sulfide, and methyl mercaptan concentration from AP-42 (11/98), table 2.4-1.

<sup>b</sup>Source: AP-42 (11/98), table 2.4-2

<sup>c</sup>Source: draft AP-42 (9/95), table 13.5-1, PM emission factor for lightly-smoking flares (x 2 for safety factor).

<sup>d</sup>Source: flare manufacturer